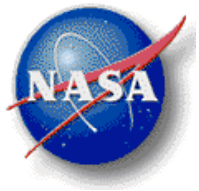
Agenda

- **Reshaping NASA's Aeronautics Program**
  Lisa Porter, Associate Administrator, Aeronautics Research Mission Directorate
- **Fundamental Aeronautics Program Overview**
  Rich Wlezien, Director (Acting), Fundamental Aeronautics Program
- **Aviation Safety Program Overview**
  John White, Director (Acting), Aviation Safety Program
- **Airspace Systems Program Overview**
  John Cavolowsky, Deputy Program Manager for Technical Integration, Airspace Systems Program
- **Aeronautics Test Program Overview**
  Blair Gloss, Director, Aeronautics Test Program
- **Next Steps**
  Lisa Porter, Associate Administrator, Aeronautics Research Mission Directorate



Reshaping NASA's Aeronautics Program

Dr. Lisa Porter
Associate Administrator for Aeronautics
January 12, 2006

The Three Principles

- We will dedicate ourselves to the mastery and intellectual stewardship of the core competencies of Aeronautics for the Nation in all flight regimes.
- We will focus our research in areas that are appropriate to NASA's unique capabilities.
- We will directly address the R&D needs of the Next Generation Air Transportation System (NGATS) in partnership with the member agencies of the Joint Planning and Development Office (JPDO).

Big-Picture Implementation

- We will conduct long-term, focused, cutting-edge research.
- All research will be integrated.
  - No more “1000 flowers blooming”.
  - A holistic approach is needed to bring about system-level revolutionary capabilities.
- Long-term research can and should have milestones.
  - Enables continual assessment of research portfolio.
  - Enables short-term “products” while sticking to long-term revolutionary goals.
- No more “stove-piping”.
  - Research can and should be leveraged across Projects, Programs and Centers.

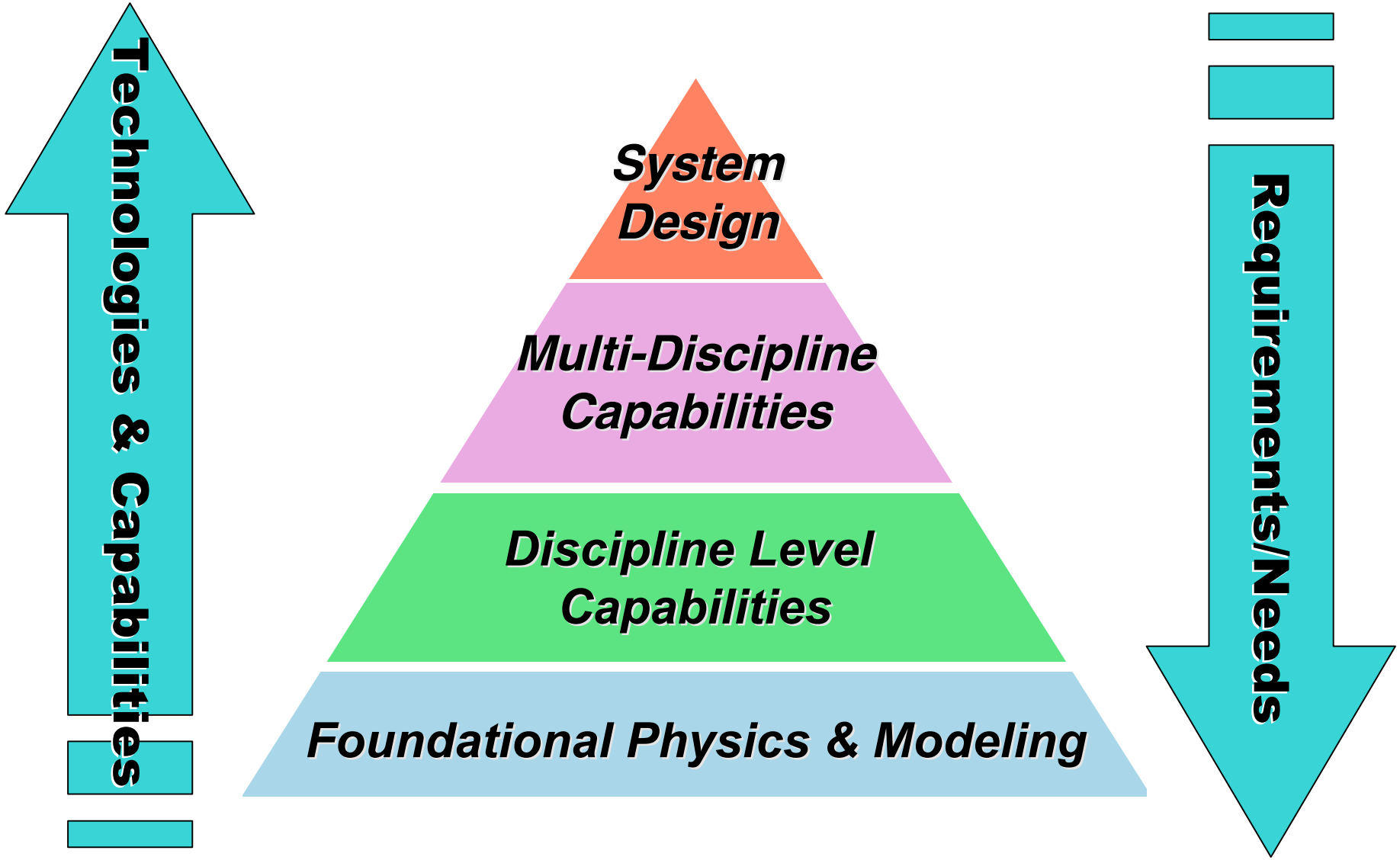
Re-shaping Aeronautics

OLD		NEW
Vehicle Systems	→	Fundamental Aeronautics
Aviation Safety and Security	→	Aviation Safety
Airspace Systems	→	Airspace Systems

Re-shaping Aeronautics

- **Fundamental Aeronautics Program (FAP)**
  - We will conduct long-term, cutting-edge research in the core competencies of aeronautics in all flight regimes, producing knowledge/data/capabilities/ design tools that are applicable across a broad range of air vehicles.
  - Four thrust areas:
    - Hypersonics
    - Supersonics
    - Subsonics: fixed wing
    - Subsonics: rotary wing
- **Aviation Safety Program (AvSP)**
  - We will build upon our unique safety-related research capabilities to…
    - Improve the inherent safety attributes of new and legacy vehicles.
    - Overcome aircraft safety technological barriers that would otherwise constrain the full realization of the NGATS.
- **Airspace Systems Program (ASP)**
  - We will directly address the Air Traffic Management R&D needs of the NGATS as defined by the Joint Planning & Development Office (JPDO).
- **Aeronautics Test Program (ATP)**
  - We will protect and maintain our key research and test facilities.

Research Philosophy



Impact on Partnerships

- NASA will take responsibility for the intellectual stewardship of the core competencies of Aeronautics for the Nation.
  - Ensures the availability of a world class resource (personnel, facilities, knowledge and expertise) ready to be drawn upon by our Government partners (e.g., DoD, FAA, JPDO) and by the private sector.
- University partnerships
  - We will integrate students and faculty as true partners in our research projects.
    - Enables replenishment of workforce at both NASA and in industry.
  - Full and open competition for funds.
- Industry partnerships
  - We will shift from near-term, evolutionary procurements to long-term, intellectual partnerships.
    - Ensures ability to provide long-term, stable investment in capabilities that will benefit all of industry.

Approach

Use Space Act Agreements to collaborate with industry; Establish partnerships with other Govt agencies (FAA, DOD, JPDO).

Develop system-level capabilities to enable our civilian and military partners to develop revolutionary systems to meet their needs.

Level 4

NASA development of multidisciplinary methods and technologies.

Integrate methods and technologies to develop multi-disciplinary solutions.

Level 3

NASA development of discipline-related solutions.

Leverage the foundational research to develop technologies and analytical tools focused on discipline-based solutions.

Level 2

Use NASA Research Announcements (NRAs) to solicit proposals for foundational research in areas where NASA needs to enhance its core capabilities.

Conduct foundational research to further our fundamental understanding of the underlying principles.

Level 1

Four-Step Planning Process

Step 1: Assess the long-term research needs and goals in each Program and develop technical roadmaps to accomplish those goals.

Step 2: Solicit information on key areas of interest from the external community and determine opportunities for collaboration through an RFI.

Step 3: Define research proposals at the field centers.

Step 4: Issue NASA Research Announcements to solicit proposals for foundational research.

Step 1 Details

- Conducted a series of workshops for each project in each Program.
  - Drew upon NASA's technical expertise.
  - Output: 10-year schedule/milestone roadmap for each project based upon the research pyramid philosophy.
    - Milestones at each of the 4 levels.
    - Milestones are linked together.
    - Milestones had to be technically credible and critical to long-term research goals.
    - Milestones were prioritized.
- Each Program then held a cross-cutting workshop to identify areas of overlap and collaboration as well as potential gaps across each project.
- Conducted an Inter-Program workshop to identify areas of overlap and collaboration across all programs.
  - Coordinate research activities to ensure optimal use of resources.
- Presented workshop results to Government partners, including DOD, FAA, and JPDO.

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